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PATENT APPLICATION
Mo-5861
RC-208

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF)
THOMAS FRÜH ET AL) GROUP NO.: 1713
SERIAL NUMBER: 09/736,593) EXAMINER: P. D. MULCAHY
FILED: DECEMBER 13, 2000)
TITLE: USE OF DIALKYL POLYSULFIDES)
FOR MASTICATION OF NATURAL)
AND SYNTHETIC RUBBERS)

APPEAL BRIEF

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sirs:

This Brief, submitted in triplicate, is an Appeal from the Final Office Action dated June 23, 2003, in which Claims 4 -11 were rejected.

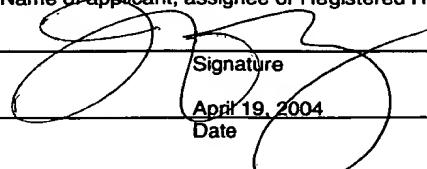
I. REAL PARTY IN INTEREST

Each of the inventors has assigned his rights in this application to Rhein Chemie Rheinau GmbH, a German Corporation. The real party in interest in this Appeal is therefore Rhein Chemie Rheinau GmbH.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450 04/19/04

Date

Jennifer R. Seng, Reg. No. 45,851
Name of applicant, assignee or Registered Representative


Signature

Apr 19, 2004
Date

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II. RELATED APPEALS AND INTERFERENCES

There are no pending appeals or interferences of which Appellants are aware that would be affected by or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS

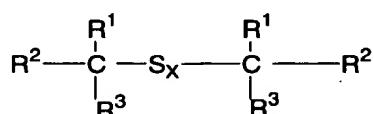
Claim 4 - 11 remain pending and are subject to this Appeal.

IV. STATUS OF THE AMENDMENT

After the Final Office Action issued June 23, 2003, Appellants filed a Response which included an Amendment to Claims 5-8. The amendment was not entered and Appellants filed a Request for Continued Examination on September 22, 2003. An Office Action was issued on December 1, 2003 to which Appellants filed a Notice of Appeal on February 14, 2004.

V. SUMMARY OF THE INVENTION

The present invention is directed to a method for the mastication of rubbers comprising the step of mixing said rubbers with a dialkyl polysulfide and optionally rubber chemicals and/or fillers, wherein said dialkyl polysulfide is a polysulfide of the formula



wherein R¹ to R³ are identical or different and represent a linear branched C₁-C₁₈-alkyl radical or represent hydrogen and x represents the numbers 3 to 5.

VI. ISSUES

Claims 4-19 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Trivette, et al.

VII. GROUPING OF CLAIMS

None of Claims 4-11 will be argued separately in response to the Issues. Therefore, Claims 4-11 stand or fall together.

VIII. ARGUMENTS

Appellants' invention as claimed in Claims 4-11 is not anticipated by or obvious in view of Trivette, et al.

Claims 4-11 are rejected under 35 U.S.C. § 102(b) as anticipated by or in the alternative, under 35 U.S.C. § 103(a) as obvious over Trivette, Jr. et al.

Appellants respectfully traverse this ground of rejection.

Appellants submit that in order to anticipate a claim the prior art reference must teach each and every element of the claimed invention, either expressly or inherently. Also, Appellants respectfully submit that "in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claims limitations. The teachings or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellants' disclosure." See MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ 2d. 1438 (Fed. Cir. 1991).

The present invention is directed to a method for the mastication of rubbers comprising the step of mixing said rubbers with a dialkyl polysulfide and optionally rubber chemicals and/or fillers.

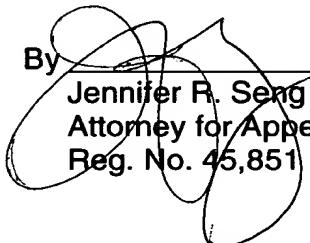
As previously submitted, Trivette, Jr. et al. discloses an improved vulcanization process, specifically a process for preventing pre-vulcanization. According to Trivette, Jr. et al. prevulcanization may occur during the usual processing steps prior to the final vulcanization step or during storage. See Column 1, lines 26-18. According to Trivette, Jr. et al. it was discovered that, in the presence of a sulfur vulcanizing agent, the taught organic sulfide inhibit prevulcanization. See Column 2, lines 11-15. As disclosed in the Examples, the addition of the polysulfide inhibited prevulcanization of the rubber mixtures. Accordingly, Trivette, Jr. et al. teaches adding dialkyl polysulfides to a rubber which has been vulcanized or adding the dialkyl polysulfides during the vulcanization process. See, Stocks A-X in the Examples, which contain the vulcanizing agent, sulfur and the vulcanizing accelerator.

According to the Office Action, the Examiner has a reasonable basis to presume that the prior art possesses the function, which would anticipate or render obvious the instantly claimed invention because each of the claimed ingredients is present, except for function.

A masticating agent is added to a rubber mixture to soften the rubber thereby making the rubber more processable. During mastication the main chain of the rubber compound is broken down. In the alternative, during vulcanization cross-linking of the rubber occurs to provide a rubber with improved properties, such as, strength and stability. Accordingly, Appellants submit that if a dialkyl polysulfide is added during or subsequent to vulcanization, as disclosed in Trivette, Jr. et al., the dialkyl polysulfide could not have a mastication effect because during vulcanization cross-linking of the rubber takes place, which is the exact opposite of a masticating effect. Therefore, Appellants submit that when the disclosure of Trivette, Jr. et al. is taken as a whole, not only does Trivette, Jr. et al. fail to teach or suggest the claimed invention, it actually teaches away from a method of masticating a rubber mixture with a polysulfide, as it actually teaches adding a polysulfide after any sort of

masticating would have occurred. Accordingly, Appellants request withdrawal of this ground of rejection.

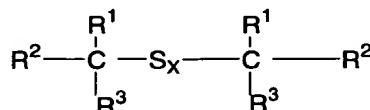
Respectfully submitted,

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APPENDIX - CLAIMS ON APPEAL

Claim 4. A method for the mastication of rubbers comprising the step of mixing said rubbers with a dialkyl polysulfide and optionally rubber chemicals and/or fillers, wherein said dialkyl polysulfide is a polysulfide of the formula



wherein

R^1 to R^3 are identical or different and represent a linear or branched C_1 - C_{18} -alkyl radical or represent hydrogen and
 x represents the numbers 3 to 5.

Claim 5. A method according to Claim 4, wherein said dialkyl polysulfide is used in amounts of 0.1 to 10 phr, based on the total amount of said rubbers to be masticated.

Claim 6. A method according to Claim 4, wherein said rubber is selected from the group consisting of natural rubber (NR), styrene/butadiene copolymers (SBR), acrylonitrile/ butadiene copolymers (NBR), ethylene/propylene copolymers (EPDM) and fluorohydrocarbon rubbers.

Claim 7. A method according to claim 6, wherein said rubbers are selected from the group consisting of natural rubber and styrene/butadiene copolymers.

Claim 8. A method according to claim 4, wherein said dialkyl polysulfide is used in conjunction with metal-containing heterocyclic ring compounds.

Claim 9. A method according to claim 4, wherein prior to mixing with said rubbers, said dialkyl polysulfides are absorbed onto a solid inert carrier.

Claim 10. A method according to claim 9, wherein said solid inert carrier is selected from the group consisting of carbon blacks, dispersed silicas and silicates, metal oxides, metal carbonates, metal sulfates, metal hydroxides, and organic carrier materials.

Claim 11. A method according to Claim 10, wherein said solid inert carrier is selected from the group consisting of silica and carbon black.



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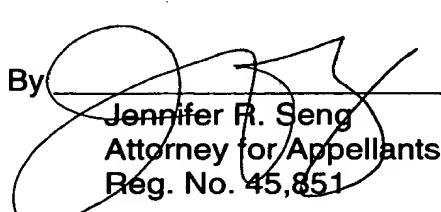
LETTER

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed herewith are three copies of an Appeal Brief in the matter of the subject Appeal. Please charge the fee for filing the Brief, \$330.00, to our Deposit Account Number 13-3848.

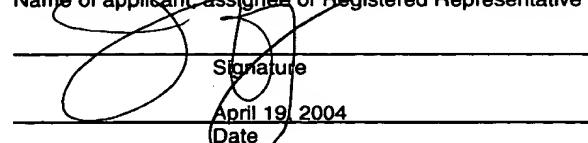
Respectfully submitted

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Name of applicant, assignee or Registered Representative


Signature
April 19, 2004
Date